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Remarks

The present response is to the Office Action mailed in the above-referenced case on December 8, 2003. Claims 1-15 are pending for examination. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbon (U.S. 6,473,778), hereinafter Gibbon, in view of Orr (U.S. 6,430,357), hereinafter Orr.

Applicant has carefully studied the prior art references cited and applied by the Examiner, and the Examiner's rejections and statements of the instant Office Action. In response, applicant herein provides argument that the combined prior art references relied upon by the Examiner do not teach, suggest or intimate all of the limitations of applicant's claims. Applicant points out and argues the key and patentable limitations of the claims which appear to have been misunderstood by the Examiner in the rejections and statements of the instant Office Action.

Regarding independent claims 1 and 8, the Examiner has stated that Gibbon teaches a method of editing video presentation as described in the abstract of the invention, comprising substantially the limitations of applicant's claims, with the exception that Gibbon fails to specifically teach topic change detection as claimed. The Examiner has relied on the reference of Orr for teaching this deficiency, stating that Orr, specifically teaches determining the position of topic changes in the video presentation by analyzing the close captioning (col. 3, line 52 - col. 4, line 26), wherein Orr teaches parsing for analyzing closed caption data to determine selected sections, contending that the teaching is equivalent to determining topic changes, as taught in applicant's invention, and specifically recited in applicant's claims. Applicant respectfully traverses the Examiner's position, and argues that the prior art references, either singly or combined, clearly

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and unarguably do not produce applicant's invention, specifically, determining the position of topic changes in the video presentation by analyzing the closed caption (CC) or created text. Applicant argues that, although both references teach analyzing the text of closed captioning, there is no teaching or suggestion whatever in either reference of determining and marking either topic or scene changes by using the results of analysis of extracted CC text.

Firstly, applicant must respectfully point out to the Examiner that the reference of Gibbon is improperly applied as a primary reference because Gibbon teaches an alternative invention for solving an alternative problem. Specifically, the Examiner has stated that Gibbon teaches a method of editing video presentations. Applicant however, believes this to be incorrect. As described in the abstract portion of Gibbon, the generation of hypermedia documents from transcriptions of television programs using parallel text alignment is taught, not a method and apparatus for indicating topic or scene changes by extracting and analyzing CC text, as in applicant's invention.

Gibbon teaches producing an enriched time-referenced text stream using a time-referenced text stream, or CC stream associated with the media stream, and an enriched text stream, or transcription associated with the media stream, wherein the text of the transcription is aligned with the text of the CC stream, and transferring time references from the CC stream to the transcription stream based on the alignment, producing an enriched time-referenced text stream. The reference teaches receiving the multimedia stream, extracting the CC text from the stream, receiving a portion of a media stream of the multimedia stream, and linking a portion of the enriched time-referenced text stream with the portion of the media stream based on the time references, thereby producing a hypermedia document. Applicant argues that this teaching is quite different from applicant's teaching of analyzing the extracted closed caption (CC) or created text, and using

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the results of the analysis of extracted CC text for determining the position of topic, or scene changes in a video presentation.

The Examiner has stated that Orr specifically teaches topic change detection by using the results of analyzing the CC or created text associated with a multi-media stream. Applicant respectfully disagrees. Orr teaches parsing the CC data so that it can be used to navigate to a selected portion, playback selected portions in selected orders, or other such manipulation, and is taught to be applied to DVD video systems. Applicant has carefully reviewed the portions of Orr (col. 3, line 52 - col. 4, line 26) and (col. 4, lines 50-60) cited and applied by the Examiner, and can nowhere find any specific teaching or suggestion of actually determining and detecting scene or topic changes, using the results of analysis of CC or created text associated with a multimedia stream, as taught and claimed in applicant's invention.

Applicant's invention, on the other hand, teaches exploiting the CC or created text for the purpose of determining topic changes, for such as generating story-line changes and summary descriptions represented by thumbnail presented to users as an interactive tool in an interactive audio-video presentation, termed interactive magazine (I-mag) by the inventors. Applicant's invention determines the frame beginning a scene or topic change, at the time of the analysis of the CC text, thereby indicating the scene change, and then generates a thumbnail from the marked frame, which is used as the interactive tool by the user viewing the live multimedia presentation.

For example, with reference to applicant's figure 8 and supporting disclosure in the specification, a complete sentence may be extracted from the CC or created text, and the nouns of the sentence are parsed, and if these nouns are not found in comparing with recent nouns extracted from previous sentences in CC text, then a decision is made that a new topic or story has begun in the media

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presentation. If the same nouns, or significant instances, are found, then the decision is that the topic has not changed. The method and apparatus of the present invention can be used to identify topic or story line changes that occur in a wide variety of video content accompanied by CC text. An adaptive knowledge base in one embodiment of the invention plays a part in refining topic change techniques by providing more dynamic rules for comparing sentences.

Referring now to Fig. 7, layer 633 is responsible for key-frame selection and thumbnail generation as labeled. Layer 633 receives indication of a new topic change by presentation time stamp (where the change is indicated in the video segment) from layer 631. Layer 633 also receives a text summary rendered by text writer 651 of layer 631 to be used for annotating a generated thumbnail. Layer 633 receives the video files associated by reference (time stamp) with the CC text files processed in layers 627-631. A Software video player 653 is provided and adapted to play the video segment frame by frame with capability of indexing to segments or frames indicated by time stamp.

A frame selection module 655 is provided within layer 633 and adapted to select a key frame appearing after indication of a topic change. A key frame represents a still shot appearing after a new topic has been detected. Rules regarding the exact key frame selected are pre-set by the hosting enterprise. For example, in a wholly automated embodiment, the rule may indicate to take the fifth frame after a topic change marker.

Once a key frame is identified and selected, a thumbnail generator is provided for the purpose of producing an annotated thumbnail representing the topic change for insertion into an interactive magazine. The annotated portion of a user-selected thumbnail appears in a separate window as the result of a user initiated action such as a "mouse over", which is a common cursor action. Each generated thumbnail represents a story or topic with the annotation thereof being

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the first few sentences describing the new topic. Generated thumbnails appear near the main window of an interactive magazine next to each other in logical (serial) order according to how they appear in the video as is further described below.

Gibbon teaches producing an enriched time-referenced text stream using a time-referenced text stream, or CC stream associated with the media stream, and an enriched text stream, or transcription associated with the media stream, wherein the text of the transcription is aligned with the text of the CC stream, and transferring time references from the CC stream to the transcription stream based on the alignment, producing an enriched time-referenced text stream. The reference teaches receiving the multimedia stream, extracting the CC text from the stream, receiving a portion of a media stream of the multimedia stream, and linking a portion of the enriched time-referenced text stream with the portion of the media stream based on the time references, thereby producing a hypermedia document. Applicant argues that this teaching is quite different from applicant's teaching of analyzing the extracted closed caption (CC) or created text, and using the results of the analysis of extracted CC text for determining the position of topic, or scene changes in a video presentation.

Applicant argues that Gibbon is improperly applied as a primary reference because Gibbon teaches an alternative invention for solving an alternative problem, and Orr does not specifically teach topic change detection by using the results of analyzing the CC or created text associated with a multi-media stream. Applicant can nowhere find any specific teaching or suggestion of actually determining and detecting scene or topic changes, using the results of analysis of CC or created text associated with a multimedia stream, as taught and claimed in applicant's invention.

As all of the claims standing for examination have been shown to be

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patentable as amended over the art of record, applicant respectfully requests reconsideration, and that the present case be passed quickly to issue. If there are any time extensions needed beyond any extension specifically requested with this amendment, such extension of time is hereby requested. If there are any fees due beyond any fees paid with this amendment, authorization is given to deduct such fees from deposit account 50-0534.

Respectfully Submitted,

Vijnan Shastri et al.

by



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Method of Transmission: By Facsimile

CASE DOCKET NO. P3718

In reference to application of Vijnan Shastri et al.

Serial No. 09/586,538

For Method and Apparatus for Indicating Story-Line Changes by Mining Closed-Caption-Text

Sir:

Transmitted herewith is and an amendment in the above-identified application, under 37 C.F.R. 1.312.

- ☒ No additional fee is required.
☒ Applicant claims Small entity status under 37 CFR 1.27.
☐ The fee has been calculated as shown below.

**** CLAIMS AS AMENDED ****

**** CLAIMS AS AMENDED ****							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Claims Remaining After Amendment		Highest No. Paid For Previously	Present Extra	Rate Small Entity	Rate Large Entity	Additional Fee
Total Claims	15	Minus	** 20	0	\$ 9	\$ 18	\$ 0.00
Indep Claims	2	Minus	*** 3	0	\$ 42	\$ 84	\$ 0.00
<input type="checkbox"/> First presentation of a multiple dependent claim					\$ 0	\$ 0	\$ 0.00
<input type="checkbox"/> Terminal Disclaimer Fees							\$ 0.00
Extension Fee	<input type="checkbox"/> 1st Month		<input type="checkbox"/> 2nd Month		<input type="checkbox"/> 3rd Month		\$ 0.00
Total additional for claims, time extensions and disclaimer fees							\$ 0.00

** If the "highest Number Previously Paid For" in this space is less than 20, write "20" in this space.


*** If the "highest Number Previously Paid For" in this space is less than 3, write "3" in this space.

**** Multiple dependencies, if any, included in the above calculation.

* If the entry in column 2 is less than the entry in column 4, write "0" in column 5.

☐ A check in the amount of 0.00 is attached.☐ Charge \$ 0.00 to deposit account 50-0534 . (A duplicate of this sheet is enclosed)☒ Please charge any additional fees or credit overpayment to Deposit Account 50-0534 . A duplicate of this sheet is enclosed.

Respectfully Submitted,


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